

WHAT IS CLAIMED IS:

*Sub 1/6*  
A spread code allocation method in a CDMA cellular, comprising the steps of:

*Step 1/6*  
having a first code set including a plurality of first codes and a second code set including one or a plurality of second codes,

allocating the second code to said first code set and multiplying said plurality of first codes by said second code allocated to generate a plurality of combined codes,

assigning a priority to said combined code for each transmission signal to be transmitted from a base station to a mobile station,

allocating said combined code to said transmission signal based on said priority, and

diffusing said transmission signal by the allocated combined code to transmit said transmission signal diffused to said mobile station.

2. The spread code allocation method in a CDMA cellular as set forth in claim 1, further comprising the step of,

at a plurality of said mobile stations, measuring a channel quality value and informing said base station of said channel quality value and at said base station, determining a priority of said combined code based on

said channel quality value informed.

3. The spread code allocation method in a CDMA cellular as set forth in claim 1, further comprising the steps of:

5 at a plurality of said mobile stations, measuring a channel quality value and informing said base station of said channel quality value and at said base station, determining a priority of said combined code based on said channel quality value informed, and

10 setting a priority to said second code according to said channel quality value and setting a priority of said combined code to be higher as said second code attains a higher priority.

4. The spread code allocation method in a CDMA cellular as set forth in claim 1, further comprising the steps of:

5 at a plurality of said mobile stations, measuring a channel quality value and informing said base station of said channel quality value and at said base station, determining a priority of said combined code based on said channel quality value informed,

10 setting a priority to said second code according to said channel quality value and setting a priority of said combined code to be higher as said second code attains a higher priority, and

7- providing an axis of a channel quality value  
representing said channel quality value and dividing the  
axis of a channel quality value by a plurality of  
threshold values to set a channel quality value within  
the same value area among a plurality of value areas  
generated by the division by said threshold values to  
have the same priority of said second code.

5. The spread code allocation method in a CDMA  
cellular as set forth in claim 1, further comprising the  
steps of:

at a plurality of said mobile stations, measuring  
a channel quality value and informing said base station  
of said channel quality value and at said base station,  
determining a priority of said combined code based on  
said channel quality value informed, and

setting a priority to said first code and setting  
a priority of each combined code in a group of combined  
codes including the same second code to be higher as  
said first code attains a higher priority.

6. The spread code allocation method in a CDMA  
cellular as set forth in claim 1, further comprising the  
steps of:

at a plurality of said mobile stations, measuring  
a channel quality value and informing said base station  
of said channel quality value and at said base station,

determining a priority of said combined code based on said channel quality value informed,

10        setting a priority to said first code and setting a priority of each combined code in a group of combined codes including the same second code to be higher as said first code attains a higher priority, and

15        providing an axis of a channel quality value representing said channel quality value and dividing the axis of a channel quality value by a plurality of threshold values to set a channel quality value within the same value area among a plurality of value areas generated by the division by said threshold values to have the same priority of said first code.

20        7.        The spread code allocation method in a CDMA cellular as set forth in claim 1, further comprising the step of

5        grasping a transmission quality required amount required by a mobile station receiving each said transmission signal to determine a priority of said combined code based on said transmission quality required amount.

8.        The spread code allocation method in a CDMA cellular as set forth in claim 1, further comprising the steps of:

(grasping a) transmission quality required amount

5 required by a mobile station receiving each said  
transmission signal to determine a priority of said  
combined code based on said transmission quality  
required amount, and

10 setting a priority to said second code according  
to said transmission quality required amount and setting  
a priority of said combined code to be higher as said  
second code attains a higher priority.

9. The spread code allocation method in a CDMA  
cellular as set forth in claim 1, further comprising the  
steps of:

5 grasping a transmission quality required amount  
required by a mobile station receiving each said  
transmission signal to determine a priority of said  
combined code based on said transmission quality  
required amount,

10 setting a priority to said second code according  
to said transmission quality required amount and setting  
a priority of said combined code to be higher as said  
second code attains a higher priority, and

15 providing an axis of a transmission quality  
required amount representing said transmission quality  
required amount and dividing the axis of a transmission  
quality required amount by a plurality of threshold  
values to set a transmission quality required amount  
within the same value area among a plurality of value

20 areas generated by the division by said threshold values  
to have the same priority of said second code.

10. The spread code allocation method in a CDMA  
cellular as set forth in claim 1, further comprising the  
steps of:

5 grasping a transmission quality required amount  
required by a mobile station receiving each said  
transmission signal to determine a priority of said  
combined code based on said transmission quality  
required amount, and

10 setting a priority to said first code according  
to said transmission quality required amount and setting  
a priority of each combined code in a group of said  
combined codes including the same second code to be  
higher as said first code attains a higher priority.

11. The spread code allocation method in a CDMA  
cellular as set forth in claim 1, further comprising the  
steps of:

5 grasping a transmission quality required amount  
required by a mobile station receiving each said  
transmission signal to determine a priority of said  
combined code based on said transmission quality  
required amount,

10 setting a priority to said first code according  
to said transmission quality required amount and setting

a priority of each combined code in a group of said combined codes including the same second code to be higher as said first code attains a higher priority, and providing an axis of a transmission quality required amount representing said transmission quality required amount and dividing the axis of a transmission quality required amount by a plurality of threshold values to set a transmission quality required amount within the same value area among a plurality of value areas generated by the division by said threshold values to have the same priority of said first code.

12. The spread code allocation method in a CDMA cellular as set forth in claim 1, further comprising the step of

grasping a transmission quality required amount required by a mobile station receiving each said transmission signal to determine a priority of said combined code based on said transmission quality required amount, wherein

a transmission error rate is taken as said transmission quality required amount.

13. The spread code allocation method in a CDMA cellular as set forth in claim 1, further comprising the step of

grasping a transmission quality required amount

5 required by a mobile station receiving each said  
transmission signal to determine a priority of said  
combined code based on said transmission quality  
required amount, wherein

10 a transmission rate is taken as said transmission  
quality required amount.

14. The spread code allocation method in a CDMA  
cellular as set forth in claim 1, further comprising the  
step of

5 grasping a transmission quality required amount  
required by a mobile station receiving each said  
transmission signal to determine a priority of said  
combined code based on said transmission quality  
required amount, wherein

10 said transmission quality required amount is  
given by a function of a transmission rate and a  
transmission error rate.

15. The spread code allocation method in a CDMA  
cellular as set forth in claim 1, wherein

5 said mobile station measures a channel quality  
value and informs said base station of said channel  
quality value, and

said base station checks the number of uses of  
each second code by a combined code including the same  
second code and determines a priority of said combined



code based on said channel quality value informed and  
10 said number of uses of each second code.

16. The spread code allocation method in a CDMA  
cellular as set forth in claim 1, wherein

said mobile station measures a channel quality  
value and informs said base station of said channel  
5 quality value,

said base station checks the number of uses of  
each second code by a combined code including the same  
second code and determines a priority of said combined  
code based on said channel quality value informed and  
10 said number of uses of each second code, and which  
further comprises the steps of:

when said channel quality value is not less than  
a quality threshold value, setting a priority of a  
combined code to be higher that includes a second code  
15 whose said number of uses of each second code by said  
combined code is smaller, and

when said channel quality value is less than said  
quality threshold value, setting a priority of a  
combined code to be higher that includes a second code  
20 whose said number of uses of each second code by said  
combined code is larger.

17. The spread code allocation method in a CDMA  
cellular as set forth in claim 1, wherein

said mobile station measures a channel quality value and informs said base station of said channel quality value,

said base station checks the number of uses of each second code by a combined code including the same second code and determines a priority of said combined code based on said channel quality value informed and said number of uses of each second code, and which further comprises the step of:

setting a priority to said first code and setting a priority of each combined code in a group of combined codes including the same second code to be higher as said first code attains a higher priority.

18. The spread code allocation method in a CDMA cellular as set forth in claim 1, wherein

said transmission signal includes a common control signal.

19. The spread code allocation method in a CDMA cellular as set forth in claim 1, wherein

said transmission signal includes a common control signal, and

to said common control signal, a combined code having the highest priority is allocated.

20. The spread code allocation method in a CDMA

cellular as set forth in claim 1, further comprising the step of,

at a plurality of said mobile stations, measuring  
5 a channel quality value and informing said base station  
of said channel quality value and at said base station,  
determining a priority of said combined code based on  
said channel quality value informed, wherein

10 an interference signal power is taken as said  
channel quality value.

21. The spread code allocation method in a CDMA  
cellular as set forth in claim 1, further comprising the  
step of,

at a plurality of said mobile stations, measuring  
5 a channel quality value and informing said base station  
of said channel quality value and at said base station,  
determining a priority of said combined code based on  
said channel quality value informed, wherein

10 a reception power of said common control signal  
is taken as said channel quality value.

22. The spread code allocation method in a CDMA  
cellular as set forth in claim 1, further comprising the  
step of,

at a plurality of said mobile stations, measuring  
5 a channel quality value and informing said base station  
of said channel quality value and at said base station,

determining a priority of said combined code based on said channel quality value informed, wherein

10 a power ratio of a desired signal to an interference signal is taken as said channel quality value.

23. The spread code allocation method in a CDMA cellular as set forth in claim 1, further comprising the step of:

5 at a plurality of said mobile stations, measuring a channel quality value and informing said base station of said channel quality value and at said base station, determining a priority of said combined code based on said channel quality value informed, wherein

10 a power ratio of a desired signal to an interference signal is taken as said channel quality value, and further comprising the step of:

15 checking a reception power of a common control signal sent out from a base station being connected and a reception power of said common control signal sent out from a base station not being connected to calculate a power ratio of a desired signal to an interference signal from a ratio of a reception power corresponding to said base station being connected to a reception power corresponding to said base station not being connected.

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24. The spread code allocation method in a CDMA cellular as set forth in claim 1, wherein  
as said first code set, a orthogonal code is used.

25. The spread code allocation method in a CDMA cellular as set forth in claim 1, wherein  
as said second code set, a gold code or a part of the gold code is used.

26. A base station in a CDMA cellular, comprising:  
a first code set including a plurality of first codes and a second code set including one or a plurality of second codes,

means for allocating said second code to said first code set and multiplying said plurality of first codes by said second code allocated to generate a plurality of combined codes,

means for assigning a priority to said combined code for each transmission signal to be transmitted from a base station to a mobile station,

means for allocating said combined code to said transmission signal based on said priority, and

means for diffusing said transmission signal by the allocated combined code to transmit said transmission signal diffused to said mobile station.

27. The base station in a CDMA cellular as set forth

in claim 26, wherein

said base station is informed of channel quality values measured at a plurality of said mobile stations to determine a priority of said combined code based on said channel quality values informed.

28. The base station in a CDMA cellular as set forth in claim 26, wherein

said base station is informed of channel quality values measured at a plurality of said mobile stations to determine a priority of said combined code based on said channel quality values informed, and

sets a priority to said second code according to said channel quality value and sets a priority of said combined code to be higher as said second code attains a higher priority.

29. The base station in a CDMA cellular as set forth in claim 26, wherein

said base station is informed of channel quality values measured at a plurality of said mobile stations to determine a priority of said combined code based on said channel quality values informed,

sets a priority to said second code according to said channel quality values and sets a priority of said combined code to be higher as said second code attains a higher priority, and

provides an axis of a channel quality value representing said channel quality value and divides the axis of a channel quality value by a plurality of threshold values to set a channel quality value within the same value area among a plurality of value areas generated by the division by said threshold values to have the same priority of said second code.

30. The base station in a CDMA cellular as set forth in claim 26, wherein

said base station is informed of channel quality values measured at a plurality of said mobile stations and determines a priority of said combined code based on said channel quality values informed, and

sets a priority to said first code according to said channel quality value and sets a priority of each combined code in a group of combined codes including the same second code to be higher as said first code attains a higher priority.

31. The base station in a CDMA cellular as set forth in claim 26, wherein

said base station is informed of channel quality values measured at a plurality of said mobile stations and determines a priority of said combined code based on said channel quality values informed,

sets a priority to said first code according to

said channel quality value and sets a priority of each combined code in a group of combined codes including the same second code to be higher as said first code attains a higher priority, and

provides an axis of a channel quality value representing said channel quality value and divides the axis of a channel quality value by a plurality of (threshold) values to set a channel quality value within the same value area among a plurality of value areas generated by the division by said threshold values to have the same priority of said first code.

32. The base station in a CDMA cellular as set forth in claim 26, wherein

said base station grasps a transmission quality required amount required by a mobile station receiving each said transmission signal to determine a priority of said combined code based on said transmission quality required amount.

33. The base station in a CDMA cellular as set forth in claim 26, wherein

said base station grasps a transmission quality required amount required by a mobile station receiving each said transmission signal to determine a priority of said combined code based on said transmission quality required amount, and



sets a priority to said second code according to  
said transmission quality required amount and sets a  
priority of said combined code to be higher as said  
second code attains a higher priority.

34. The base station in a CDMA cellular as set forth  
in claim 26, wherein

said base station grasps a transmission quality  
required amount required by a mobile station receiving  
each said transmission signal to determine a priority of  
said combined code based on said transmission quality  
required amount,

sets a priority to said second code according to  
said transmission quality required amount and sets a  
priority of said combined code to be higher as said  
second code attains a higher priority, and

provides an axis of a transmission quality  
required amount representing said transmission quality  
required amount and divides the axis of a transmission  
quality required amount by a plurality of threshold  
values to set a transmission quality required amount  
within the same value area among a plurality of value  
areas generated by the division by said threshold values  
to have the same priority of said second code.

35. The base station in a CDMA cellular as set forth  
in claim 26, wherein

said base station grasps a transmission quality  
required amount required by a mobile station receiving  
5 each said transmission signal to determine a priority of  
said combined code based on said transmission quality  
required amount, and

sets a priority to said first code according to  
said transmission quality required amount and sets a  
10 priority of each combined code in a group of said  
combined codes including the same second code to be  
higher as said first code attains a higher priority.

36. The base station in a CDMA cellular as set forth  
in claim 26, wherein

said base station grasps a transmission quality  
required amount required by a mobile station receiving  
5 each said transmission signal to determine a priority of  
said combined code based on said transmission quality  
required amount,

sets a priority to said first code according to  
said transmission quality required amount and sets a  
10 priority of each combined code in a group of said  
combined codes including the same second code to be  
higher as said first code attains a higher priority, and

provides an axis of a transmission quality  
required amount representing said transmission quality  
15 required amount and divides the axis of a transmission  
quality required amount by a plurality of threshold

values to set a transmission quality required amount within the same value area among a plurality of value areas generated by the division by said threshold values to have the same priority of said first code.

37. The base station in a CDMA cellular as set forth in claim 26, wherein

said base station is informed of a channel quality value measured at said mobile station, and

checks the number of uses of each second code by a combined code including the same second code and determines a priority of said combined code based on said channel quality value informed and said number of uses of each second code.

38. The base station in a CDMA cellular as set forth in claim 26, wherein

said base station is informed of a channel quality value measured at said mobile station,

checks the number of uses of each second code by a combined code including the same second code and determines a priority of said combined code based on said channel quality value informed and said number of uses of each second code,

when said channel quality value is not less than a quality threshold value, sets a priority of a combined code to be higher that includes a second code whose said

number of uses of each second code by said combined code is smaller, and

15           when said channel quality value is less than said quality threshold value, sets a priority of a combined code to be higher that includes a second code whose said number of uses of each second code by said combined code is larger.

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39.       The base station in a CDMA cellular as set forth in claim 26, wherein

          said base station is informed of a channel quality value measured at said mobile station,

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          checks the number of uses of each second code by a combined code including the same second code and determines a priority of said combined code based on said channel quality value informed and said number of uses of each second code, and

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          sets a priority to said first code and sets a priority of each combined code in a group of combined codes including the same second code to be higher as said first code attains a higher priority.